

MILLIMETER AND SUBMILLIMETER WAVE SPECTROSCOPY OF HIGHER ENERGY CONFORMERS OF 1,2-PROPANEDIOL

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We have performed a study of the millimeter/submillimeter wave spectrum of four higher energy conformers of 1,2-propanediol (continuation of the previous study on the three lowest energy conformers^a). The present analysis of rotational transitions carried out in the frequency range 38 – 400 GHz represents a significant extension of previous microwave work. The new data were combined with previously-measured microwave transitions and fitted using a Watson's S-reduced Hamiltonian. The final fits were within experimental accuracy, and included spectroscopic parameters up to sixth order of angular momentum, for the ground states of the four higher energy conformers following previously studied ones: $g'Ga$, $gG'g'$, aGg' and $g'Gg$. The present analysis provides reliable frequency predictions for astrophysical detection of 1,2-propanediol by radio telescope arrays at millimeter wavelengths.

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